



TNT Express

ExpressConnect

## ExpressConnect Pricing Integration Guide v3 Schema



# Revision History

| <b>Date</b> | <b>Version</b> | <b>Description</b>  |
|-------------|----------------|---|
| 26/07/2012  | 1.0            | First revision of technical user guide for ExpressConnect Pricing |
| 30/07/2012  | 1.1            | Minor changes following review                                    |
| 31/07/2012  | 1.2            | Addition of error messages and sample client request              |
| 17/08/2012  | 1.3            | Correction made following UAT                                     |
| 18/09/2012  | 1.4            | Removed invalid elements from example UK Domestic request.        |
| 11/03/2013  | 2.0            | Updated to use ExpressConnect Pricing 3.0                         |
| 02/07/2013  | 2.1            | Removed the redundant insuranceCurrency element from the schema   |
| 23/07/2018  | 2.2            | Updated to include interface version 3.2                          |
| 07/02/2018  | 2.3            | Updated correct product xml example                               |
| 14/02/2018  | 2.4            | Updated element order to reflect schema                           |
| 03/06/2019  | 2.5            | Update to reflect release   |

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## 1. Introduction

ExpressConnect Pricing is part of the ExpressConnect family, providing B2B interfaces into TNT's operational and financial systems. The ExpressConnect Pricing interface is used to provide an estimated cost for the delivery of the consignment.

This manual provides a technical guide to the ExpressConnect Pricing interface. It is designed to help developers understand the interface sufficiently to program an application to request an estimated cost for the consignment. With the use of XML (extensible mark-up language) technology, this will provide price checking functionality for multiple PRICECHECK submissions. The majority of examples in the document will be XML based as it is easier to understand the data involved.

Return data from TNT will be formatted as XML, again in a predetermined structure. When this data is returned to a client, they may parse it for storage or presentation, as they require.

An ExpressConnect Login Id will be arranged by your TNT representative. The customer must supply a list of valid TNT accounts numbers to be used with the system. A secure connection is thus set up, using both authentication and secure protocols, to submit requests and to receive processed priceCheck labels based on the published URL:

<https://express.tnt.com/expressconnect/pricing/getprice>

Sample scripts are provided to show how a connection can be achieved together with example requests and responses to illustrate the data required; see [Connecting to ExpressConnect Pricing](#). Consideration is given below to the networking and security requirements to ensure that this is successful.

This document is structured as follows:

- Registration
- Making a request to the TNT server
- Example XML Price Request Document
- Input XML Format - the structure and content of the request
- Processing the response - information about the data that will be returned
- Errors - possible error messages and the steps you can take to resolve them
- Connecting to ExpressConnect Pricing
- Appendices

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## 1.1 Legend

The following conventions have been used throughout this document.

|            |   |
|------------|---|
| Normal     | The majority of text in this document is in this style. Section in this style are part of the narrative of the document   |
| Code       | Sections or words in this text indicate a section of XML, XML element, or section of code.  |
| [0..1]     | Digits within square brackets indicate the number of times an element may occur in an XML document. Examples include:<br><br>[1] The element must appear once in the document<br>[0..*]. The element may appear once, many times (unlimited) or not at all.<br>[0..1] The element is optional. If it appears, it must appear only once.<br>[1..5] The element may appear any number of times between 1 and 5 times  |
| xsd:string | This indicates one of the schema types, in this case a string. More information on defined schema data types can be found at <a href="http://www.w3.org/TR/xmlschema-2/#built-in-datatypes">http://www.w3.org/TR/xmlschema-2/#built-in-datatypes</a>  |
| ...        | Means that the section has been omitted for the sake of clarity. This usually means that the omitted elements are described elsewhere or that the section where they appear is a repetition of a previous stanza.<br><br>For example:<br><pre>&lt;house&gt;   &lt;room&gt;     &lt;width unitOfMeasure="m"&gt;12&lt;/width&gt;   &lt;/room&gt; &lt;!-- the next room contains the same dimensions sections as the one above. --&gt;   &lt;room&gt;...&lt;/room&gt; &lt;/house&gt;</pre> |

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## 2. Registration

Each customer is set up with a username and password, required for all communications with the system. The same username and password is used for ExpressConnect Shipping Pricing and Tracking.

Please contact your local TNT representative to complete a registration request.

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### 3. Making a request to the TNT server

To make a Price request, you must construct an XML file which conforms to the standard set out in this document. The submission will be validated to check for any problems with the structure of the XML. This facility is provided to allow you to self-diagnose problems with the XML.

Before sending an XML document over the internet to TNT, you should verify that you understand the XML format by successfully using the Express Web Services Pricing site provided by TNT, contact your TNT representative for further information. The audience for the website is intended to be developers who can use it as a tool to test their XML and to analyse results, prior to and during the development of client applications. It includes a Test Harness that allows the developer to submit sample XML to the service.

Please note that the site requires you to enter your user id and password before displaying the test harness.

- ExpressConnect Pricing does NOT support non-ASCII characters.
- The demonstration site links to a production like environment so that it replicates exactly the results that the customer will achieve with their completed application.

Having made a successful submission of an XML document via the test page, you are ready to set up a socket connection and make a programmatic submission using HTTP POST to the following URL:

<https://express.tnt.com/expressconnect/pricing/getprice>

Please be aware that all submissions to the aforementioned URL will require you to supply your user id and password in the HTTP header of the request using Basic authentication.

More detailed information on connecting to the ExpressConnect servers can be found in [Connecting to ExpressConnect Pricing](#) section

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#### 4. Example XML Price Request Document

An example is provided below of a typical price request. The request specifies a single consignment, with no specific service.

There can be multiple **priceCheck** elements in a request, so each one contains the **rateId** element to act as a key to uniquely identify it. This is then used in responses to identify which one each returned price, error message, etc relates to.

```
<?xml version="1.0" encoding="UTF-8"?>
<priceRequest>
  <appId>PC</appId>
  <appVersion>3.0</appVersion>
  <priceCheck>
    <rateId>rate2</rateId>
    <sender>
      <country>GB</country>
      <town>Atherstone</town>
      <postcode>CV9 2RY</postcode>
    </sender>
    <delivery>
      <country>ES</country>
      <town>Alicante</town>
      <postcode>03006</postcode>
    </delivery>
    <collectionDateTime>2013-03-11T15:01:00</collectionDateTime>
    <product>
      <type>N</type>
    </product>
    <currency>GBP</currency>
    <priceBreakDown>true</priceBreakDown>
    <consignmentDetails>
      <totalWeight>1.25</totalWeight>
      <totalVolume>0.1</totalVolume>
      <totalNumberOfPieces>1</totalNumberOfPieces>
    </consignmentDetails>
  </priceCheck>
```

Figure 1

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## 5. Input XML format

The input XML format for ExpressConnect Pricing is a list of price requests.

The structure for a Price Request is described below in detail. Alternatively, refer to Appendix A which contains a summary of the points below.

### Note

It should be noted that XML defines a number of characters which are reserved. These include the greater-than (>), less-than (<), ampersand (&), and percent (%) characters. Where these appear in the data which is being submitted to ExpressLabel, the characters must be escaped or the content surrounded with a CDATA section.

A common requirement is to submit an address which includes a company name such as: "Andrews & Plummer". The ampersand must therefore be escaped as per the XML rules (&#amp;) or alternatively the whole or part of the text must be wrapped in a CDATA section as follows:

```
...  
<name><![CDATA[Andrews & Plummer]]></name>
```

The request has the following structure:

- Header – always required, this defines the XML document
- Price request– A list of `priceCheck` elements for which a price is required

### 5.1. Header

The header section will begin every ExpressConnect Pricing request XML document submitted to TNT.

This contains the XML declaration, which contains the character encoding used for the document and the standalone attribute, which should be set to "no":

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
```

Figure 2

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## 5.2. The priceRequest element

A Price Request at a high level is structured as shown in Figure 3:

```
<priceRequest>
  <appId>PC</appId>
  <appVersion>3.0</appVersion>
  <priceCheck>
    ...
  </priceCheck>
  <priceCheck>
    ...
  </priceCheck> </priceRequest>
```

Figure 3

A `priceRequest` contains 1 or more `priceCheck` elements. This allows batching of pricing requests. Each `priceCheck` element contains the set of information needed to generate an estimate cost for the `priceCheck` referenced.

A `priceCheck` element contains a `rateId` key attribute that identifies it uniquely *within the request*. The response will associate pricing data and validation errors with their `priceCheck` requests through this key. The value of this key must be of type string and is only valid in ExpressConnect Pricing for a single transaction - i.e. ExpressConnect Pricing does not retain any history of the keys used once a request has been processed and a response sent to the client system.

Additionally, the `priceRequest` also contains a few elements with details of the pricing interface being used. These are:

- The **appId** element should be defaulted to “PC”. This element is used by various source applications to highlight where the request was made; it has no bearing on the estimated cost returned.
- The **appVersion** denotes the version of ExpressConnect Pricing that will be used. The supplied value determines the interface functionality that will be evoked, 3.0, 3.1, 3.2 or 2.0. If no `appVersion` is supplied, it will be assumed that the existing 2.0 interface is used.

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### 5.3. The appVersion element

TNT has a new interface version for ExpressConnect Pricing - 3.2. Earlier Interface versions are unaffected by this change and will continue to work as before.

Often when making the choice on which service to use, the decision is based on the combination of price AND transit time. When booking a shipment manually in other TNT web tools – like myTNT – all available services are displayed, including price and transit time. The customer then makes a choice based on that info.

This feature has been introduced as part of version 3.2 of the Interface.

The input xml structure is unchanged, but you supply 3.2 in the interface version:

```
<priceRequest>
  <appId>PC</appId>
  <appVersion>3.2</appVersion>
  <priceCheck>
    ...
  </priceCheck>
  <priceCheck>
    ...
  </priceCheck> </priceRequest>
```

Figure 4

As TNT need to know the exact origin / destination for transit times, then the Town (and where appropriate) the Postcode becomes mandatory.

For each product the element "<estimatedTimeOfArrival>2018-05-18T09:00:00</estimatedTimeOfArrival>" is returned. We also return the:

- Latest Booking time
- Begin of collection time
- End of collection time

Please see section The Transit times Section for more information.

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#### 5.4. The priceCheck element

Each price request must contain at least one priceCheck element, which is made up of the following parts:

```

<priceCheck>
  <rateId>rate2</rateId>
  <sender>
    <country>NL</country>
    <town>Amsterdam</town>
    <postcode>1100 KG</postcode>
  </sender>
  <delivery>
    <country>GB</country>
    <town>Athersone</town>
    <postcode>CV9 2RY</postcode>
  </delivery>
  <collectionDateTime>2019-02-14T09:20:00</collectionDateTime>
  <product>
    <id>15N</id>
    <division>G</division>
    <type>N</type>
    <!--Element option is optional, maxOccurs=4-->
    <options>
      <option>
        <optionCode>PR</optionCode>
      </option>
    </options>
  </product>
  <account>
    <accountNumber>123456789</accountNumber>
    <accountCountry>NL</accountCountry>
  </account>
  <insurance>
    <insuranceValue>110.00</insuranceValue>
    <goodsValue>100.00</goodsValue>
  </insurance>
  <termsOfPayment>S</termsOfPayment>
  <currency>GBP</currency>
  <priceBreakDown>>true</priceBreakDown>
  <consignmentDetails>
    <totalWeight>1.25</totalWeight>
    <totalVolume>0.1</totalVolume>
    <totalNumberOfPieces>1</totalNumberOfPieces>
  </consignmentDetails>
  <pieceLine>
    <numberOfPieces>1</numberOfPieces>
    <pieceMeasurements>
      <length>1</length>
      <width>2</width>
      <height>3</height>
      <weight>1.25</weight>
    </pieceMeasurements>
    <pallet>1</pallet>
  </pieceLine>
</priceCheck>

```

Figure 5

|  |                  |
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### 5.5. The **rateId** element

The **rateId** is a mandatory element which identifies the priceCheck uniquely within the request.

```
<rateId>rate1</rateId >
```

Figure 6

It is recommended that the value is unique within the priceRequest to allow easy identification of results to requests.

### 5.6. The **sender** element

The **sender** is a mandatory element and contains information on the origin of the consignment.

```
<sender>  
  <country>GB</country>  
  <town>Atherstone</town>  
  <postcode>CV9 2RY</postcode>  
</sender>
```

Figure 7

The **country** is the country where the shipment will be collected and sent from. It is represented by the 2 digit ISO 3166-1 Alpha-2 country code. It is a mandatory element.

The **town** and the **postcode** should be used to more accurately locate where the shipment will be collected and sent from. The postcode and town combination must match and offers the greatest level of accuracy for the estimated cost.

If neither the postcode / town are specified, then the default collection depot for the country will be used. This may reduce the accuracy of the returned price.

If all three are supplied, then they will be validated but the postcode and town will be used in the cost estimation process.

If you are using version 3.2 of the Interface (appVersion), and so have requested transit time information then the Town (and where appropriate) the Postcode becomes mandatory. As TNT need to know the exact origin / destination for transit times.

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## 5.7. The **delivery** element

The **delivery** is a mandatory element and contains information on the destination of the consignment.

```
<delivery>
  <country>GB</country>
  <town>Hinckley</town>
  <postcode>LE10 1YG</postcode>
</delivery>
```

Figure 8

The **country** is the country where the shipment will be collected and sent from. It is represented by the 2 digit ISO 3166-1 Alpha-2 country code. It is a mandatory element.

The **town** and the **postcode** should be used to more accurately locate where the shipment will be collected and sent from. The postcode and town combination must match and offers the greatest level of accuracy for the estimated cost.

If neither the postcode / town are specified, then the default collection depot for the country will be used. This may reduce the accuracy of the returned price.

If all three are supplied, then they will be validated but the postcode and town will be used in the cost estimation process.

## 5.8. The **collectionDateTime** element

The **collectionDateTime** identifies when the consignment will be collected

```
<collectionDateTime>2013-03-11T13:58:00</collectionDateTime>
```

Figure 9

This is an optional element that will default today's date and time. The date is the date the consignment will be collected. The format of a date time is yyyy-mmddThh:MM:ss

### Format Date Component Description

**yyyy** - The year in four digits. e.g. 2013

**mm** - The month in digits, January is 01, December is 12

**dd** - Day of the month. Valid range is 1 to 31

**hh** - The collection hour in 24 hour notation (Please note that the 24:00:00 notation for midnight is not currently supported and 00:00:00 should be used instead)

**MM** - The minutes from 00 to 60. If the hour is 24, the minute value must be 00

**ss** - The seconds from 00 to 60. If the hour is 24, the second value must be 00

All other characters - the dashes, colons, and the capital T which separates the day from the hour - are literals which must appear as they are shown above.

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## 5.9. The product element

This contains information on the product and product type.

```

<product>
  <id>15N</id>
  <division>G</division>
  <type>N</type>
  <!--Element option is optional, maxOccurs=4-->
  <options>
    <option>
      <optionCode>PR</optionCode>
    </option>
  </options>
</product>

```

Figure 11

The **id** is an optional element, and if none is supplied then all possible products that are valid for the origin/destination combination will be used for pricing purposes up to a maximum of 10 products. If you wish to determine the estimate cost for a shipment using a particular service then the service should be populated within the element. It is recommended that this element is populated if known, to offer a more rapid response to the request. If this element is not provided, then an estimated cost will be provided for all feasible services between the origin and destination based on the shipment details.

The **division** code is an optional element that will default to G for international shipments, D for Global link domestic, H for German domestic and 010 for UK domestic.

The **type** is a mandatory element which identifies whether you are shipping a “D” Document (paper/manuals/reports) or “N” Non-document (packages). Document services are not offered for a number of TNT domestic shipments. For domestic shipment within these countries please use a type of “N” for Non-document.

The **options** element can contain up to 4 child **option** elements, which each must contain a valid code for the services requested. For example, PR (Priority).

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### 5.10. The account element

The **account** element contains information on the customers account. This is an optional element, but must be supplied to obtain accurate price estimates.

```
<account>
  <accountNumber>1234567890</accountNumber>
  <accountCountry>NL</accountCountry>
</account>
```

Figure 10

The **account** element consists of an **accountNumber** and **accountCountry** element which are both mandatory.

The **accountNumber** must be a valid TNT account number as supplied by your TNT representative.

The **accountCountry** is the country where the TNT Account is held. It is represented by the 2 digit ISO 3166-1 Alpha-2 country code.

The account number must be authorised to be used by the userid and password supplied in the `login` element.

### 5.11. The insurance elements

In order to retrieve a price for your requested services it is necessary to include the following additional elements in your request.

```
<insurance>
  <insuranceValue>110.00</insuranceValue>
  <goodsValue>100.00</goodsValue>
</insurance>
```

Figure 12

The **goodsValue** must be in the same currency as the **insuranceValue** Validation is enforced which states that the `insuranceValue` cannot be more than 110% of the `goodsValue`.

If an option code of „IN“ is selected, then the following elements become mandatory.

Please refer to the TNT terms and conditions for further information on TNT's liability and coverage.

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### 5.12. The **termsOfPayment** element

This identifies whether this is an import (receiver pays) or export (sender pays) shipment.

```
<termsOfPayment>S</termsOfPayment>
```

Figure 14

A **termsOfPayment** type of “S” represents a sender pays shipments, “R” represents a receiver. If this element is not supplied then the payment type is defaulted to sender.

### 5.13. The **priceBreakDown** element

This is an optional element that determines if a full price breakdown is returned or just the high level rate. The default value is false.

```
< priceBreakDown>true</ priceBreakDown>
```

Figure 16

### 5.14. The **currency** element

This element identifies the **currency** that the estimate costs should be returned in.

```
<currency>GBP</currency>
```

Figure 13

It is represented by the 3 digit ISO 4217 Alpha-3 currency codes.

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### 5.15. The `consignmentDetails` elements

The `consignmentDetails` element contains summary piece information for the consignment you wish to request a price for.

```
<consignmentDetails>
  <totalWeight>1.25</totalWeight>
  <totalVolume>0.1</totalVolume>
  <totalNumberOfPieces>1</totalNumberOfPieces>
</consignmentDetails>
```

Figure 17

Key elements in determining the price are the `totalWeight` and `totalVolume` of the shipment. These data can be supplied at piece level using the `pieceLine` or consignment level using the `consignmentDetails`. If both element types are supplied then they must match, if only one is supplied then the other is defaulted.

The `totalWeight` element contains the total weight of the shipment in Kilograms and is a mandatory element.

The `totalVolume` element contains the total volume of the shipment in cubic metres and is a mandatory element for Non-documents, `type = „N“`.

The `totalNumberOfPieces` element contains the number of items within the shipment. This is a mandatory element.

If no `pieceLine` is specified then a default `pieceLine` is created using the values specified for the `consignmentDetails`.

The calculation is as follows:

- **weight** – This is calculated by dividing the `totalWeight` by the `totalNumberOfPieces`.
- **length/width/height** – These are calculated by firstly dividing the `totalVolume` by the `totalNumberOfPieces`. This provides the volume of an individual piece which can then be further broken down to an arbitrary length, width and height by taking the cube root.

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## 5.16. The `pieceLine` element

The **`pieceLine`** element is used to describe the individual piece lines which make up the consignment in greater detail. It is an optional element and can occur multiple times up to a maximum of 99 piece lines.

```
<pieceLine>
  <numberOfPieces>1</numberOfPieces>
  <pieceMeasurements>
    <length>1</length>      <width>2</width>
    <height>3</height>
    <weight>1.25</weight>
  </pieceMeasurements>
  <pallet>true</pallet> </pieceLine>
```

Figure 18

If both the **`pieceLine`** and **`consignmentDetails`** are specified then the total number of pieces and weight must match or an error will be returned.

The **`numberOfPieces`** element is mandatory and contains the number of items within the `pieceLine`.

The **`pieceMeasurements`** element is mandatory and contains the precise measurements for the pieces within the line. This consists of the:

- The **length** of the piece in metres.
- The **width** of the piece in metres.
- The **height** of the piece in metres.
- The **weight** of the piece in kilograms.

The **`pallet`** element can be set to true or false and indicates whether the piece line will be contained on a pallet. It is currently only used for UK Domestic pricing requests. This will default to false if not specified.

If no **`consignmentDetails`** are specified the attributes are calculated using the values specified for the `pieceLine`. The calculation is as follows:

- **totalWeight** – This is calculated by first multiplying each piece line weight by the `numberOfPieces` in the line. The `totalWeight` is then equal to the sum of the `weight` from each `pieceLine`.
- **totalNumberOfPieces** – This is calculated by adding the number of pieces on each `pieceLine` together.
- **totalVolume** – This is calculated for the `pieceLine` by multiplying the `length` x `width` x `height` x `numberOfPieces`. The volumes from each `pieceLine` can then be added together to get the `totalVolume`.

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## 6. Processing the XML Response

The document that is returned by the system is a standard XML document, which contains a generic pricing response that will apply to all types of pricing requests.

### 6.1. High level description of an XML Response Document

The first section contains the usual XML header; see [Header and Root Element](#). The ROOT node contains all the responses to the price requests. Within the root node there are 2 main sections

- `<priceResponse>` - This element provides the pricing information that is returned per service
- `<errors>` - This provides a breakdown of any errors or warning generated by the request. See the section on [Errors](#) for more details.

The sections that follow provide a more detailed explanation of each part of the response.

Below is a simple example of the new generic response XML:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<document>
  <requestId>28817</requestId>
  <errors>
    <brokenRule>
      <rateId>rate2</rateId>
      <messageType>W</messageType>
      <code>P13</code>
      <description>Standard Rates</description>
    </brokenRule>
  </errors>
  <priceResponse>
    <ratedServices>
      <rateId>rate2</rateId>
      <currency>GBP</currency>
      <ratedService>
        <product>
          <id>09N</id>
          <productDesc>9:00 Express</productDesc>
        </product>
        <totalPrice>288.47</totalPrice>
        <totalPriceExclVat>238.40</totalPriceExclVat>
        <vatAmount>50.07</vatAmount>
      </ratedService>
    </ratedServices>
  </priceResponse>
</document>
```

Figure 19

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## 6.2. Header and Root Element

As explained above, the header section will begin every ExpressConnect Pricing response XML document sent back by TNT. This contains the XML declaration, which defines the encoding of the document. The root element, `Document`

If the system has encountered a fatal error, this will appear as a `fault`. This is discussed in more details in the section on [Errors](#).

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<document>
<requestId>28817</requestId>
...
</document>
```

Figure 20

The `requestId` is a unique identifier for your price request which should be provided to the agent when contacting the service centre with any queries you have about the ExpressConnect pricing service. It will allow quick recovery of the request and response XML and enable a more timely response to any enquiry.

## 6.3. The priceResponse Section

A `priceResponse` section contains estimated cost information for a service, which may be used for the shipment request details defined in the `priceCheck` element.

There may be up to a maximum of 10 `priceResponse` sections per `priceCheck`.

```
<priceResponse>
  <ratedServices>
    <rateId>rate2</rateId>
    <currency>GBP</currency>
    <ratedService>
      <product>
        <id>09N</id>
        <productDesc>9:00 Express</productDesc>
      </product>
      <totalPrice>288.47</totalPrice>
      <totalPriceExclVat>238.40</totalPriceExclVat>
      <vatAmount>50.07</vatAmount>
    </ratedService>
  </ratedServices>
</priceResponse>
```

Figure 21

Each `priceResponse` contains a `ratedServices` element. This is made up of one or more `ratedService` which contain a price for a particular service option combination from the original request.

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At the **ratedServices** level the following high level information is returned:

- The **rateId** is used to associate the `priceResponse` with the corresponding `priceCheck`.
- The **currency** element describes the currency that the price is displayed in.

#### 6.4. The **ratedService** Section

For each `ratedService` the following information is returned:

- The **totalPrice** element contains the total estimated price for the service including VAT.
- The **totalPriceExclVat** element contains the total estimated price for the service excluding VAT.
- The **vatAmount** element contains the estimated amount of VAT for the service requested.
- The **product** element contains a summary of the service & option information to which the price request relates. See `product` section for more information.
- The **chargeElements** element contains an optional breakdown of any charges which are included within the price such as VAT and fuel supplements. See the `chargeElements` section for more information.

#### 6.5. The **product** Section

The `product` element within the `ratedService` contains a summary of the service & option information to which the price request relates.

```

<product>
  <id>15N</id>
  <productDesc>Express</productDesc>
  <options>
    <option>
      <optionCode>PR</optionCode>
      <optionDesc>Priority</optionDesc>
    </option>
  </options>
</product>

```

Figure 22

The following information is returned:

- The **id** is the identifier for the service to which the price relates e.g. 15N
- The **productDesc** is the description of the service to which the price relates e.g. Express.
- The **options** element can contain up to 4 options that relate to the price. Each **option** is made up of an **optionCode**, which is a unique identifier and an **optionDesc** which describes the option.

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## 6.6. The Transit times Section

When using interface (appVersion) version 3.2 and above, for each product we return information on the transit times and the collection window.

```
<estimatedTimeOfArrival>2019-01-21T07:30:00</estimatedTimeOfArrival>
<serviceCallCutOffTimes>
  <callCutOffDateAndTime>2019-01-18T17:30:00</callCutOffDateAndTime>
  <icaStartDateAndTime>2019-01-18T11:00:00</icaStartDateAndTime>
  <icaEndDateAndTime>2019-01-18T18:30:00</icaEndDateAndTime>
</serviceCallCutOffTimes>
```

Figure 22.1

The following information is returned:

- The **estimatedTimeOfArrival** is when we estimate we will be able to deliver the shipment
- The **callCutOffDateAndTime** is when you must have made the Booking to select this transit time/service.
- The **icaStartDateAndTime** is beginning of collection time
- The **icaEndDateAndTime** is the end of collection time

This information is used when you make the booking request via ExpressConnect Shipping.

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## 6.7. The chargeElements Section

The **chargeElements** section contains an optional breakdown of any charges (**chargeElement**) which are included within the price such as VAT and fuel supplements. This additional information will only be displayed if the **priceBreakDown** element is set to true in the request. An example of a charge breakdown is shown below:

```
<chargeElements>
  <chargeElement>
    <chargeItem>1</chargeItem>
    <chargeCategory>SURCHARGE</chargeCategory>
    <chargeCode>ESS00</chargeCode>
    <description>ENHANCED SECURITY SURCHARGE</description>
    <chargeValue>0.86</chargeValue>
    <vatIndicator>true</vatIndicator>
  </chargeElement>
  <chargeElement>
    <chargeItem>2</chargeItem>
    <chargeCategory>SURCHARGE</chargeCategory>
    <chargeCode>FSI00</chargeCode>
    <description>FUEL SURCHARGE REFERENCIADO</description>
    <chargeValue>43.22</chargeValue>
    <vatIndicator>true</vatIndicator>
  </chargeElement>
  <chargeElement>
    <chargeItem>3</chargeItem>
    <chargeCategory>VAT</chargeCategory>
    <chargeCode>VAT02</chargeCode>
    <description>IVA 21%</description>
  <chargeValue>55.35</chargeValue>
    <vatIndicator>false</vatIndicator>
  </chargeElement>
</chargeElements>
```

Figure 23

For each **chargeElement** the following information is returned:

- The **chargeItem** is an identifier for the chargeElement within the list of chargeElements returned.
- The **chargeCategory** is a descriptor of the type of charge element being returned. This will either be SURCHARGE or VAT.
- The **chargeCode** is a unique identifier for the charge being applied.
- The **description** provides a more detailed explanation of the charge being applied e.g. Fuel Surcharge.
- The **chargeValue** is the cost of the charge in the currency.
- The **vatIndicator** defines whether the VAT is applied to the charge.

## 7. Errors

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There are a number of different errors that may occur when using ExpressConnect Pricing. Many of these are likely to be encountered in the initial development phase and are concerned with the format of the XML message and the presence of data items.

The remaining messages are concerned with validation of the data items and the availability of the service. The error messages are shown below:

It would be sensible to ensure that your code is capable of handling all of the potential error messages returned by ExpressConnect Pricing.

All errors are contained with the **errors** element as shown in the example below:

```
<errors>
  <brokenRule>
    <rateId>rate2</rateId>
    <messageType>W</messageType>
    <code>P13</code>
    <description>Standard Rates</description>
  </brokenRule>
  <brokenRule>
    <rateId>rate3</rateId>
    <messageType>E</messageType>
    <code>P42</code>
    <description>The country must be entered</description>
  </brokenRule>
</errors>
```

There are three error types which can be returned within the `errors` element

- `runtimeError`
- `parseError`
- `brokenRule`

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## 7.1. The `runtimeError` section

The **runtimeError** section is for errors which are not resolvable by the customer e.g. database unavailable. The customer would be advised to contact their administrator for assistance.

The following excerpt shows an example of a runtime error:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<document>
  <errors>
    <runtimeError>
      <errorReason>ExpressConnect Pricing request has failed. If you continue to receive this error, please contact your local service centre for further assistance. </errorReason>
    </runtimeError>
  </errors>
```

The key information in the `runtimeError` error is as follows:

- **errorReason** – This element contains a description indicating that the pricing request has failed and what action the customer should take. Normally the only course of action would be to resubmit the request or contact the local service centre for further assistance.
- **errorSrcText** – This element might contain some additional information regarding the source of the error.

## 7.2. The `parseError` section

The **parseError** section is for errors with the validity of the xml passed in e.g. missing elements, incomplete tags. These errors should only occur during your initial integration work with the pricing web service.

The following excerpt shows an example of a parse error caused by not including the mandatory sender element in the request.

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<document>
  <errors>
    <parseError>
      <errorReason>cvc-complex-type.2.4.a: Invalid content was found starting with element 'country'. One of '{sender}' is expected.</errorReason>
      <errorLine>11</errorLine>
      <errorLinepos>16</errorLinepos>
      <errorSrcText></errorSrcText>
    </parseError>
  </errors>
</document>
```

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The key information in the `parseError` error is as follows:

- **errorLine** – This element indicates the line number where the error occurred in the request XML.
- **errorLinepos** – This element indicates the position on the line where the error occurred in the request XML.
- **errorSrcText** – This element is occasionally used to provide additional information related to the error.

### 7.3. The `brokenRule` section

The **brokenRule** section is for application errors which the customer can resolve such as invalid postcode, login credentials.

The following excerpt shows an example of a broken rule where the customer has specified an invalid address in the **delivery** element

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<document>
  <requestId>28821</requestId>
  <errors>
    <brokenRule>
      <rateId>rate2</rateId>
      <messageType>E</messageType>
      <code>P203</code>
      <description>Destination address town not found</description>
    </brokenRule>
  </errors>
</document>
```

The key information in the **brokenRule** error is as follows:

- **rateId** – A unique identifier for the priceRequest to which the error relates
- **messageType** – This can be used to determine the severity of the error returned.
- The three categories are:
  - “**I**” – Information
  - “**W**” – Warning
  - “**E**” - Error
- **code** – This is the unique identifier for the error.
- **description** – This element provides a descriptive explanation of the error message.

The **requestId** can be used when contacting the customer service centre to speed up the process of investigating the cause of the issue.

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#### 7.4. Table of application generated error codes, messages and resolutions

The Default Message column contains the English language message that is returned with each code. This value is intended to be used by systems integrators. For content management you should use the error code.

An element is considered empty if it contains no value or only whitespace. Therefore all of the following elements are empty:

```
<emptyElement/>

<emptyElement></emptyElement>

<emptyElement>                </emptyElement>
```

| Error Code | Error Description   | Default Message   | Resolution  |
|------------|---|---|---|
| 1          | The XML in the request is not formatted correctly.  | Failure to format incoming XML string   | Ensure the XML in the request is of the correct structure. Refer to the XSD and available documentation to rectify. |
| 2          | <del>The services returned in the response may not all be valid due to a failure to validate the possible services.</del> | <i>Deprecated</i>   |   |
| 3          | <del>The options returned in the response may not all be valid due to a failure to validate the possible options.</del>   | <i>Deprecated</i>   |   |
| 4          | <del>Failure to retrieve details of the service or options.</del>   | <i>Deprecated</i>   |   |
| 5          | <del>A timeout occurred when making a call to the database.</del>   | <i>Deprecated</i>   |   |
| 6          | An error occurred on the TNT server.  | ExpressConnect Pricing request has failed. If you continue to receive this error, please contact your local service centre for further assistance | Resubmit the request. If the problem persists contact your local service centre                                     |
| 7          | No rates available for the request  | ExpressConnect Pricing request has returned no rates. If you continue to receive no rates, please contact your local service centre               | Resubmit the request. If the problem persists contact your local service centre                                     |

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| Error Code | Error Description   | Default Message  | Resolution  |
|------------|---|--|---|
|            |   | for further assistance                                       |   |
| 8          | <del>Mandatory fields missing or invalid in the request XML.</del>                    | <i>Deprecated</i>  |   |
| 9          | No price requests found in the XML  | No Price Requests Found                                      | Refer to the XSD and available documentation to rectify.  |
| 10         | The account number entered is not associated with this customer                       | Invalid Account Number                                       | Enter a valid account number.   |
| 11         | The country code in the request XML is invalid.                                       | Invalid Country Code   | Ensure the country code matches one of those in the TNT dataset.                                    |
| 12         | The town group specified in the request XML is invalid.                               | Invalid Town Group   | Enter a town and/or postcode as the default depot address for the country is not valid.             |
| 13         | The rates returned are standard rates and do not include any account specific prices. | Standard Rates   | If account specific rates are required then account details should be populated in the request XML. |
| 14         | Domestic price requests are not supported in the country specified.                   | Invalid Domestic Consignment                                 | Domestic shipments should be within supported TNT countries.  |
| 15         | The value of the Insurance element should be a number.                                | Insurance value must be numeric                              | Ensure the value of the Insurance element is a number.  |
| 16         | Options have been specified in the request XML without an associated service code.    | Service required with options                                | Ensure a service code is specified for the requested options.                                       |
| 17         | <del>The system was unable to retrieve the service and option for the request.</del>  | <i>Deprecated</i>  |   |
| 18         | The service specified in the request is invalid.                                      | Service is invalid   | Ensure the service in the request matches a code in the TNT dataset.                                |
| 19         | <del>The system was unable to parse the request XML.</del>                            | <i>Deprecated</i>  |   |
| 20         | The request XML was not recognised as an Express Connect request.                     | XML supplied is not recognised as an ExpressConnect request. | Refer to the XSD and available documentation to rectify.  |
| 21         | No data was received from the client.   | No data received at gateway from client error                | Resubmit the request.   |

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| Error Code | Error Description  | Default Message   | Resolution  |
|------------|--|---|---|
| 22         | The maximum number of options per service has been exceeded. | Exceeded maximum number of allowed options                  | A maximum of 4 options per service are allowed.   |
| 23         | The {invalidfield.name} specified must be numeric            | The {invalidfield.name} specified must be numeric           | Ensure that the value of the element specified in the error is numeric  |
| 24         | ExpressConnect Pricing version not recognised                | ExpressConnect Pricing version not recognised               | Check that the correct version is specified between the <code>appVersion</code>   |
| 25         | The goods value must be greater than zero                    | The goods value must be greater than zero                   | Amend the <code>goodsValue</code> to be greater than zero   |
| 26         | The goods value currency must be entered                     | The goods value currency must be entered                    | Enter a currency in the <code>currency</code> element   |
| 27         | The goods value currency is invalid                          | The goods value currency is invalid                         | Amend the <code>currency</code> to use a valid value from the TNT Dataset   |
| 28         | The Insurance value must be greater than zero                | The Insurance value must be greater than zero               | Amend the <code>insuranceValue</code> to be greater than zero   |
| 31         | The goods value must be entered if insurance value supplied  | The goods value must be entered if insurance value supplied | Enter a <code>goodsValue</code> if the <code>insuranceValue</code> is supplied  |
| 32         | The Insurance value must not exceed 110 % of goods value     | The Insurance value must not exceed 110 % of goods value    | Ensure that <code>insuranceValue</code> is not more than the specified percentage greater than the <code>goodsValue</code>                          |
| 33         | The insurance details must be entered for options specified  | The insurance details must be entered for options specified | If the option IN is specified then the insurance details must also be populated.  |
| 34         | Volume must be entered for NON DOCS                          | Volume must be entered for NON DOCS                         | The <code>totalVolume</code> must be entered for NON DOCS. This may not be necessary if piece lines are supplied and the volume is derivable        |
| 35         | Volume must be greater than zero                             | Volume must be greater than zero                            | The <code>totalVolume</code> must be greater than zero  |
| 36         | Weight must be entered                                       | Weight must be entered                                      | The <code>totalWeight</code> must be entered  |
| 37         | Weight must be greater than zero                             | Weight must be greater than zero                            | The <code>totalWeight</code> must be greater than zero  |
| 38         | <del>Volume weight must be greater than zero</del>           | <i>deprecated</i>   |   |
| 39         | The total number of pieces must be entered                   | The total number of pieces must be entered                  | The <code>totalNumberOfPieces</code> must be specified. This may not be necessary if piece lines are supplied and the number of pieces is derivable |

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| Error Code | Error Description  | Default Message  | Resolution   |
|------------|--|--|--|
| 40         | The total number of pieces must be greater than zero                                   | The total number of pieces must be greater than zero                                   | The <code>totalNumberOfPieces</code> must be greater than zero   |
| 41         | The product type must be entered   | The product type must be entered   | The product type must be entered   |
| 42         | <del>The country must be entered</del>   | <i>deprecated</i>  |  |
| 43         | The goods value must be numeric  | The goods value must be numeric  | The <code>goodsValue</code> must be numeric  |
| 44         | The piece weight must be numeric   | The piece weight must be numeric   | The piece line weight must be numeric  |
| 45         | The total volume must be numeric   | The total volume must be numeric   | The <code>totalVolume</code> must be numeric   |
| 46         | The total number of pieces must be numeric   | The total number of pieces must be numeric   | The <code>totalNumberOfPieces</code> must be numeric   |
| 47         | The number of pieces on the piece line must be numeric                                 | The number of pieces on the piece line must be numeric                                 | The <code>numberOfPieces</code> on the piece line must be numeric  |
| 48         | The piece length must be numeric   | The piece length must be numeric   | The piece length must be numeric   |
| 49         | The piece width must be numeric  | The piece width must be numeric  | The piece width must be numeric  |
| 50         | The piece height must be numeric   | The piece height must be numeric   | The piece height must be numeric   |
| 51         | Total number of pieces does not match sum of piece line items                          | Total number of pieces does not match sum of piece line items                          | The <code>totalNumberOfPieces</code> does not match sum of <code>numberOfPieces</code>                               |
| 52         | Total weight does not match sum of piece line weight to within acceptable error margin | Total weight does not match sum of piece line weight to within acceptable error margin | The <code>totalWeight</code> does not match sum of piece line weight to within acceptable error margin, currently 5% |
| 53         | Consignment summary details or piece lines must be specified                           | Consignment summary details or piece lines must be specified                           | <code>consignmentDetails</code> or <code>pieceLine</code> must be specified  |
| 54         | The total weight must be numeric   | The total weight must be numeric   | The <code>totalWeight</code> must be numeric   |
| 55         | The account number must be specified   | The account number must be specified   | The account number must be specified   |
| 56         | The collection date must be specified  | The collection date must be specified  | The <code>collectionDateTime</code> date must be specified   |
| 57         | No guaranteed services   | No guaranteed services   |  |

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| Error Code | Error Description                                       | Default Message  | Resolution   |
|------------|---|--|--|
| 58         | No divisional default residential surcharges            | No divisional default residential surcharges             |  |
| 59         | Error rounding weight specified for rate                | Error rounding weight specified for rate                 |  |
| 60         | Exceptional volume weight calculated                    | Exceptional volume weight calculated                     | Review the ratio of volume to weight in request  |
| 61         | The weight and volume were derived from the piece lines | The weight and volume were derived from the piece lines  | No need to do anything as this is just a warning that some of the data has had to be derived as its not included in the request. |
| 62         | Piece line dimension unit is not supported              | Piece line dimension unit is not supported               | Contact your local service centre  |
| 63         | Piece line weight unit is not supported                 | Piece line weight unit is not supported                  | Contact your local service centre  |
| 64         | Option is not valid for chosen service                  | One or more options are not valid for the chosen service | Resubmit request without the option code and contact your local service centre for more information about the option.            |
| 65         | Option code is not recognised                           | Option code is not recognised                            | Resubmit request without the option code and contact your local service centre for more information about the option.            |
| 66         | Total volume will be used for rating                    | Total volume will be used for rating                     | This is an information message to indicate the volume that will be used to generate the price                                    |
| 67         | Total weight will be used for rating                    | Total weight will be used for rating                     | This is an information message to indicate the weight that will be used to generate the price                                    |
| 68         | Total Volume unit is not supported                      | Total Volume unit is not supported                       | Contact your local service centre  |
| 69         | Volume weight is bigger than effective weight           | Volume weight is bigger than effective weight            | Review the ratio of volume to weight in request  |
| 70         | Total Weight unit is not supported                      | Total Weight unit is not supported                       | Contact your local service centre  |
| 71         | Goods value must be entered                             | Goods value must be entered                              | Ensure that goods value is entered   |
| 72         | Piece width must be entered                             | Piece width must be entered                              | Ensure that piece width is entered   |
| 73         | Piece height must be entered                            | Piece height must be entered                             | Ensure that piece height is entered  |
| 74         | Piece length must be entered                            | Piece length must be entered                             | Ensure that piece length is entered  |
| 75         | Piece weight must be entered                            | Piece weight must be entered                             | Supply a piece weight where not total weight exists or a piece line is missing the weight  |

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| Error Code | Error Description   | Default Message  | Resolution  |
|------------|---|--|---|
| 101        | Origin address town not supplied  | Origin address town not supplied                         | Supply origin address town  |
| 102        | Origin address town and postcode not supplied   | Origin address town and postcode not supplied            | Supply origin address town and postcode.  |
| 103        | Origin address town has not been recognized.  | Origin address town not found                            | Ensure that the specified origin town is a valid town.                                      |
| 104        | Origin address town results in more than one match  | Origin address town not unique                           | Ensure the origin town is entered correctly. Do not use partial town names.                 |
| 105        | The origin address province maximum length has been exceeded.   | Origin address province length exceeded                  | Maximum 30 characters.  |
| 106        | Origin address postcode has been entered for a country that does not accept postcodes as part of the address.           | Origin address postcode not allowed for selected country | Remove the origin postcode element from the request.  |
| 107        | Origin address province not found   | Origin address province not found                        | Ensure origin province is entered correctly or remove the origin province element.          |
| 108        | The origin postcode is invalid in the request.  | Origin address postcode invalid                          | Ensure the origin postcode element is entered correctly.                                    |
| 109        | Origin address postcode has an invalid format. For example CV9 XTT is incorrect for a UK postcode.                      | Origin address postcode invalid format                   | Ensure the origin postcode element is entered correctly and is no longer than 9 characters. |
| 110        | Origin address postcode matches more than one town. This may occur if a partial postcode is entered.                    | Origin address postcode not unique                       | Ensure the origin postcode is entered correctly.  |
| 111        | Origin address has an invalid town / postcode combination. For example if you entered a London postcode for Birmingham. | Origin address town/postcode combination invalid         | Ensure origin postcode and/or town are entered correctly.                                   |
| 112        | Origin address postcode is not within the valid range of postcodes for the town.  | Origin address postcode not in valid range               | Ensure origin postcode and/or town are entered correctly.                                   |
| 113        | Origin postcode is missing from the request XML.  | Origin address postcode not found                        | Ensure origin postcode is entered correctly   |

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| Error Code | Error Description  | Default Message  | Resolution   |
|------------|--|--|--|
| 114        | Origin country not found in the XML  | Origin address country not supplied                                  | Country is mandatory in the request.   |
| 115        | Origin address country is not valid ISO 3166-1 ALPHA-2. (2 character alpha).                                       | Origin address country not valid iso.                                | Ensure origin country is entered correctly.  |
| 116        | Origin address town results in more than one match.  | Origin address not unique  | Ensure origin town and/or postcode are entered correctly. Do not use partial town or postcodes.  |
| 117        | Origin address postcode is below minimum length for selected country   | Origin address postcode is below minimum length for selected country | Ensure origin town and/or postcode are entered correctly. Do not use partial town or postcodes.  |
| 201        | Destination address town not supplied  | Destination address town not supplied                                | Supply destination address town  |
| 202        | Destination address town and postcode not supplied   | Destination address town and postcode not supplied                   | Supply destination address town and postcode.  |
| 203        | Destination address town has not been recognized.  | Destination address town not found                                   | Ensure that the specified destination town is a valid town.                                      |
| 204        | Destination address town results in more than one match  | Destination address town not unique                                  | Ensure the destination town is entered correctly. Do not use partial town names.                 |
| 205        | The Destination address province maximum length has been exceeded.   | Destination address province length exceeded                         | Maximum 30 characters.   |
| 206        | Destination address postcode has been entered for a country that does not accept postcodes as part of the address. | Destination address postcode not allowed for selected country        | Remove the destination postcode element from the request.  |
| 207        | Destination address province not found   | Destination address province not found                               | Ensure destination province is entered correctly or remove the destination province element.     |
| 208        | The Destination postcode is invalid in the request.  | Destination address postcode invalid                                 | Ensure the destination postcode element is entered correctly.                                    |
| 209        | Destination address postcode has an invalid format. For example CV9 XTT is incorrect for a UK postcode.            | Destination address postcode invalid format                          | Ensure the destination postcode element is entered correctly and is no longer than 9 characters. |
|            |  |  |  |

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| Error Code | Error Description  | Default Message   | Resolution   |
|------------|--|---|--|
| 210        | Destination address postcode matches more than one town. This may occur if a partial postcode is entered.                    | Destination address postcode not unique                                   | Ensure the destination postcode is entered correctly.  |
| 211        | Destination address has an invalid town / postcode combination. For example if you entered a London postcode for Birmingham. | Destination address town/postcode combination invalid                     | Ensure destination postcode and/or town are entered correctly.                                       |
| 212        | Destination address postcode is not within the valid range of postcodes for the town.  | Destination address postcode not in valid range                           | Ensure destination postcode and/or town are entered correctly.                                       |
| 213        | Destination postcode is missing from the request XML.  | Destination address postcode not found                                    | Ensure destination postcode is entered correctly   |
| 214        | Destination country not found in the XML   | Destination address country not supplied                                  | Country is mandatory in the request.   |
| 215        | Destination address country is not valid ISO 3166-1 ALPHA-2. (2 character alpha).  | Destination address country not valid iso.                                | Ensure destination country is entered correctly.   |
| 216        | Destination address town results in more than one match.   | Destination address not unique  | Ensure destination town and/or postcode are entered correctly. Do not use partial town or postcodes. |
| 217        | Destination address postcode is below the minimum length for selected country  | Destination address postcode is below minimum length for selected country | Ensure destination town and/or postcode are entered correctly. Do not use partial town or postcodes. |
| 301        | The depot ID for the origin depot is not valid.  | Delivery in depot id is not valid   | Depot ID should be one of the valid TNT towngroup codes contained within the towngroup dataset.      |
| 302        | The depot ID for the self collect delivery address is not valid.   | Self collect depot id is not valid  | Depot ID should be one of the valid TNT towngroup codes contained within the towngroup dataset.      |
|            |  |   |  |

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| Error Code | Error Description  | Default Message                            | Resolution   |
|------------|--|--|--|
| 401        | The TNT backend system was unable to determine the route between the source and destination addresses. | Unable to determine traffic lane for route | Contact TNT helpdesk.  |
| 999        | The user name and password specified in the request have not been recognised.                          | login details not recognised               | Enter the correct username and password combination. Contact the TNT helpdesk if the problem persists. |

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## 8. Connecting to ExpressConnect Pricing

ExpressConnect Pricing is a HTTP web service, which defines an XML interface for data transfer. The XSD for the service can be found in the pricing section of the website. In the section below we have an example using Java.

XML can be simpler to develop as the message are human readable and can be constructed using simple String manipulation.

Even for a simple XML connection a number of jar files are recommended,

- a. commons-httpclient-3.1.jar ( <http://hc.apache.org/httpclient-3.x/>)
- b. commons-logging-1.1.1.jar (<http://commons.apache.org/>)
- c. commons-codec-1.3.jar (<http://commons.apache.org/>)

See below an example request set up using Apache HttpClient 4.2.1. Please note the usage of BASIC authorization header for authentication.

```
public class XMLTestApp {
    public static void main(String args[]) throws ClientProtocolException,
        IOException {
        // Create the xml request
        StringBuilder xmlRequest = new StringBuilder();
        xmlRequest.append("<?xml version='1.0' encoding='UTF-8' ?>");
        xmlRequest.append("<priceRequest>");
        // Add price request contents here
        xmlRequest.append("</priceRequest>");

        // Declare ExpressConnect Pricing URL and initialise Http POST request
        String url = "https://express.tnt.com/expressconnect/pricing/getprice";
        HttpPost postRequest = new HttpPost(url);

        // Create the request entity
        HttpEntity requestEntity = new StringEntity(xmlRequest.toString(),
            ContentType.create("text/xml", "UTF-8"));
        postRequest.setEntity(requestEntity);

        // Create the authentication header
        String userPassword = "USER:USER";
        byte[] basicAuthEncoding = Base64.encodeBase64(userPassword.getBytes());
        postRequest.addHeader("Authorization", "Basic "
            + new String(basicAuthEncoding));

        // Initialise HttpClient and execute POST request
        HttpClient httpClient = new DefaultHttpClient();
        HttpResponse result = httpClient.execute(postRequest);

        // Check HTTP status code of the response
        System.out.println("Status Code: "
            + result.getStatusLine().getStatusCode());

        // Read content of result stream
        HttpEntity entity = result.getEntity();
        if (entity != null) {
            System.out.println(IOUtils.toString(entity.getContent()));
        }
    }
}
```



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## 9. Appendix A: XML elements definition (input)

These tables contain all of the possible Input XML nodes and some information about their use. All elements are mandatory and must contain just one instance unless stated in the table below.

XML elements which do not contain a value but are merely a container for other elements are noted as **Container element**, the elements contained therein are described in the rows immediately below. Please remember that field values should be escaped using the ![CDATA[]] notation. At a minimum, all address fields should be escaped. Failure to escape these areas could result in unexpected problems if the value in an element contains an Ampersand (&).

For all data types described with a type prefix of 'xsd:' see [XSD Data Types](#).

For all data types in the form „stringMinLengthXMaxLengthY“, „stringMaxLengthY“, „integerMin0Max9“, doubleMaxExclusiveX or longMaxLengthX see Section [Custom Data Types](#).

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| XML ELEMENT  | DESCRIPTION   | COMMENTS   |
|--------------|---|--|
| priceRequest | Top level element for a message to ExpressConnect Pricing.<br><b>Container element</b>              | The root XML element for a Price Request message. This element must contain one or more price requests, each one represented by a priceCheck element.  |
| priceCheck   | The priceCheck element represents a single request for a price request.<br><b>Container element</b> | Multiple price requests, each one in a priceCheck element may be submitted. The information within this element will be used to validate the addresses, determine the services, and produce the estimate costs for the shipment.<br><br>Each priceCheck element must contain a rateId attribute that uniquely identifies the price request. The value of the key may be any alphanumeric string - typically this value will be an integer value i.e. the first request will have key="1", second value of key="2" and so on. Any validation errors will be tagged with this key so that you can identify the request in error. |
| appId        | Type = xsd:string   | This is the application ID and should be set to „PC“. This is a mandatory element.   |
| appVersion   | Type = xsd:decimal  | The <b>appVersion</b> denotes the version of ExpressConnect Pricing that will be used. The supplied value determines the interface functionality that will be evoked, 3.0, 3.1 or 2.0. If no appVersion is supplied it will be assume that the existing 2.0 interface is used  |
| rateId       | Type = xsd:string   | It is recommended that the value is unique within the priceRequest to allow easy identification of results to requests. This is a mandatory element.   |
| sender       | Element to hold the origin address details. <b>Container element</b>                                | This element provides the origin address details and must be supplied for each Price request message.  |

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| delivery           | Element to hold the destination address details.<br><b>Container element</b>                      | This element provides the destination address details and must be supplied for each Price request message.   |
| country            | Type = xsd:string   | The ISO 3166-1 Alpha-2 country code for the country of the given address. This is a mandatory element.   |
| town               | Type = xsd:string   | The town name as recognised by TNT.  |
| postcode           | Type = xsd:string   | Postcode or zip code   |
| collectionDateTime | Type=xsd:dateTime   | The format of a date time is yyyy-mmddThh:MM:ss  |
| Product            | Element to hold details of the pricing service and options requested.<br><b>Container element</b> | Information relating to the TNT product chosen for this priceCheck.<br><br>If this is supplied, the price will be for the service, otherwise a list of services will be returned.                        |
| id                 | Type = xsd:string   | The identifier for the requested product/service e.g. 15N  |
| division           | Type = xsd:string   | The identifier for the requested product/service division. This is an optional element and if not specified will default to an appropriate division based on the origin and destination country selected |
| type               | Type = xsd:string   | Type of service for product chosen. Values are "D" for a document or "N" for non-documents. This is a mandatory element.   |

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|----------------|---|--|
| options        | Element to hold the options specified for the pricing request. <b>Container element</b>           | The options element can contain up to 4 options  |
| option         | Type = xsd:string   | The option must be a valid code from the TNT dataset.  |
| account        | Element to hold the account details specified for the pricing request. <b>Container element</b>   | This is an optional element but must be supplied to obtain accurate price estimates.   |
| accountNumber  | Type = xsd:string   | TNT account number, which is the 9 or 10 digit number assigned by the TNT sales person.  |
| accountCountry | Type = xsd:string   | ISO 3166-1 Alpha-2 country code for the country in which the TNT account is registered.  |
| insurance      | Element to hold the insurance details specified for the pricing request. <b>Container element</b> | This element holds the insurance details needed to retrieve an insurance quote as part of the price response. If an insurance option such as IN is specified than these elements become mandatory. |
| insuranceValue | Type = xsd:decimal  | The value of the insurance required to cover the goodsValue specified in the request. This is limited to a maximum of 110% of the goodsValue   |
| goodsValue     | Type = xsd:decimal  | The value of the goods in the currency specified in the request  |
| termsOfPayment | Type = xsd:string   | Whether the sender or receiver to paying for the shipment. Values are "S" for a sender or "R"  |

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|                     |   | for receiver. Optional element, which default to S if not supplied.   |
| currency            | Type = xsd:string   | The ISO 4217 Alpha-3 currency codes for the currency of the price request.  |
| priceBreakDown      | Type = xsd:boolean  | This is an optional element that determines if a full price breakdown is returned or just the high level rate. The default value is false.  |
| consignmentDetails  | Element to hold the summary consignment details for the pricing request. <b>Container element</b>   | This element is optional as long as the <code>pieceLine</code> are specified instead  |
| totalWeight         | Type = xsd:decimal  | The total weight of the shipment, Mandatory element, must be supplied in Kilograms.   |
| totalVolume         | Type = xsd:decimal  | The total volume of the shipment, Mandatory element if non document, must be supplied in cubic metres.  |
| totalNumberOfPieces | Type = xsd:integer  | The total number of pieces this <code>priceCheck</code> contains. In cases where only some of the pieces are being submitted, this value should contain the total number of pieces in the consignment, not the total number of pieces in the request.   |
| pieceLine           | Element to hold the individual piece line details for the pricing request. <b>Container element</b> | The <code>pieceLine</code> element is used to describe the individual piece lines which make up the consignment in greater detail. It is an optional element and can occur multiple times up to a maximum of 99 piece lines. The details specified for the <code>pieceLine</code> must be compatible with those specified in the <code>consignmentDetails</code> . If no <code>pieceLine</code> are specified then a default one will be created. |

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|-------------------|---|---|
|                   |   |   |
| numberOfPieces    | Type = xs:integer   | Number of pieces within this piece line.  |
| pieceMeasurements | Element to hold the individual pieceLine measurements. <b>Container element</b> |   |
| weight            | Type = xs:decimal   | The weight of an individual piece in KG.  |
| length            | Type = xs:decimal   | The length in metres  |
| width             | Type = xs:decimal   | The width in metres   |
| height            | Type = xs:decimal   | The height in metres.   |
| pallet            | Type = xs:boolean   | Whether the packages have been placed onto a pallet. The default value is false |

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## 10. Appendix B: XSD Data Types

| XSD DATA TYPE | DESCRIPTION   |
|---------------|---|
| dateTime      | Data expected in the format CCYY-MM-DD'T'hh:mm:ss where CC indicates century, YY year, MM month in 2 digit format, DD day of the month, hh hour of the day, mm minutes and ss seconds.<br><br>For example 5:30 p.m. on 30th December 2008 would be 2008-12-30T17:30:00. This data type describes instances identified by the combination of a date and a time. It is described in Chapter 5.4 of ISO 8601 and the W3C XML Schema Recommendation. Its lexical space is the extended format: [-]CCYY-MM-DDThh:mm:ss[Z](+ -)hh:mm] |
| double        | Numeric data with decimal places in the range -9007199254740991..9007199254740991.  |
| int           | Numeric data without decimal places in the range -2147483648..2147483647  |
| long          | Numeric data without decimal places in the range -9223372036854775808..9223372036854775807  |
| string        | XML compatible alphanumeric data.   |
| boolean       | 1 – true, 0 – false   |
| decimal       | The maximum number of decimal digits you can specify is 18.   |
| Integer       | An integer value  |

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## 11. Appendix C: ISO 3166-1 Alpha-2 Country Codes

| Country names          | ISO 3166-1-alpha-2 code |
|------------------------|-------------------------|
| <b>A</b>               |                         |
| AFGHANISTAN            | AF                      |
| ÅLAND ISLANDS          | AX                      |
| ALBANIA                | AL                      |
| ALGERIA                | DZ                      |
| AMERICAN SAMOA         | AS                      |
| ANDORRA                | AD                      |
| ANGOLA                 | AO                      |
| ANGUILLA               | AI                      |
| ANTARCTICA             | AQ                      |
| ANTIGUA AND BARBUDA    | AG                      |
| ARGENTINA              | AR                      |
| ARMENIA                | AM                      |
| ARUBA                  | AW                      |
| AUSTRALIA              | AU                      |
| AUSTRIA                | AT                      |
| AZERBAIJAN             | AZ                      |
| <b>B</b>               |                         |
| BAHAMAS                | BS                      |
| BAHRAIN                | BH                      |
| BANGLADESH             | BD                      |
| BARBADOS               | BB                      |
| BELARUS                | BY                      |
| BELGIUM                | BE                      |
| BELIZE                 | BZ                      |
| BENIN                  | BJ                      |
| BERMUDA                | BM                      |
| BHUTAN                 | BT                      |
| BOLIVIA                | BO                      |
| BOSNIA AND HERZEGOVINA | BA                      |
| BOTSWANA               | BW                      |
| BOUVET ISLAND          | BV                      |
| BRAZIL                 | BR                      |

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|  |    |
|--|----|
| BRITISH INDIAN OCEAN<br>TERRITORY        | IO |
| BRUNEI DARUSSALAM                        | BN |
| BULGARIA                                 | BG |
| BURKINA FASO                             | BF |
| BURUNDI                                  | BI |
| <b>C</b>                                 |    |
| CAMBODIA                                 | KH |
| CAMEROON                                 | CM |
| CANADA                                   | CA |
| CAPE VERDE                               | CV |
| CAYMAN ISLANDS                           | KY |
| CENTRAL AFRICAN REPUBLIC                 | CF |
| CHAD                                     | TD |
| CHILE                                    | CL |
| CHINA                                    | CN |
| CHRISTMAS ISLAND                         | CX |
| COCOS (KEELING) ISLANDS                  | CC |
| COLOMBIA                                 | CO |
| COMOROS                                  | KM |
| CONGO                                    | CG |
| CONGO, THE DEMOCRATIC<br>REPUBLIC OF THE | CD |
| COOK ISLANDS                             | CK |
| COSTA RICA                               | CR |
| CÔTE D'IVOIRE                            | CI |
| CROATIA                                  | HR |
| CUBA                                     | CU |
| CYPRUS                                   | CY |
| CZECH REPUBLIC                           | CZ |
| <b>D</b>                                 |    |
| DENMARK                                  | DK |
| DJIBOUTI                                 | DJ |
| DOMINICA                                 | DM |
| DOMINICAN REPUBLIC                       | DO |
| <b>E</b>                                 |    |
| ECUADOR                                  | EC |
| EGYPT                                    | EG |

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|                                   |    |
|-----------------------------------|----|
| EL SALVADOR                       | SV |
| EQUATORIAL GUINEA                 | GQ |
| ERITREA                           | ER |
| ESTONIA                           | EE |
| ETHIOPIA                          | ET |
| <b>F</b>                          |    |
| FALKLAND ISLANDS (MALVINAS)       | FK |
| FAROE ISLANDS                     | FO |
| FIJI                              | FJ |
| FINLAND                           | FI |
| FRANCE                            | FR |
| FRENCH GUIANA                     | GF |
| FRENCH POLYNESIA                  | PF |
| FRENCH SOUTHERN TERRITORIES       | TF |
| <b>G</b>                          |    |
| GABON                             | GA |
| GAMBIA                            | GM |
| GEORGIA                           | GE |
| GERMANY                           | DE |
| GHANA                             | GH |
| GIBRALTAR                         | GI |
| GREECE                            | GR |
| GREENLAND                         | GL |
| GRENADA                           | GD |
| GUADELOUPE                        | GP |
| GUAM                              | GU |
| GUATEMALA                         | GT |
| GUERNSEY                          | GG |
| GUINEA                            | GN |
| GUINEA-BISSAU                     | GW |
| GUYANA                            | GY |
| <b>H</b>                          |    |
| HAITI                             | HT |
| HEARD ISLAND AND MCDONALD ISLANDS | HM |
| HOLY SEE (VATICAN CITY STATE)     | VA |
| HONDURAS                          | HN |
| HONG KONG                         | HK |

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|   |     |
|---|-----|
| HUNGARY                                   | HU  |
| <b>I</b>                                  |     |
| ICELAND                                   | IS  |
| INDIA                                     | IN  |
| INDONESIA                                 | ID  |
| IRAN, ISLAMIC REPUBLIC OF                 | IR  |
| IRAQ                                      | IQ  |
| IRELAND                                   | IE  |
| ISLE OF MAN                               | IM  |
| ISRAEL                                    | IL  |
| ITALY                                     | IT  |
| <b>J</b>                                  |     |
| JAMAICA                                   | JM  |
| JAPAN                                     | JP  |
| JERSEY                                    | JE  |
| JORDAN                                    | JO  |
| <b>K</b>                                  |     |
| KAZAKHSTAN                                | KZ  |
| KENYA                                     | KE  |
| KIRIBATI                                  | KI  |
| KOREA, DEMOCRATIC PEOPLE'S<br>REPUBLIC OF | SKP |
| KOREA, REPUBLIC OF                        | KR  |
| KUWAIT                                    | KW  |
| KYRGYZSTAN                                | KG  |
| <b>L</b>                                  |     |
| LAO PEOPLE'S DEMOCRATIC<br>REPUBLIC       | LA  |
| LATVIA                                    | LV  |
| LEBANON                                   | LB  |
| LESOTHO                                   | LS  |
| LIBERIA                                   | LR  |
| LIBYAN ARAB JAMAHIRIYA                    | LY  |
| LIECHTENSTEIN                             | LI  |
| LITHUANIA                                 | LT  |
| LUXEMBOURG                                | LU  |
| <b>M</b>                                  |     |
| MACAO                                     | MO  |

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|                                 |    |
|---------------------------------|----|
| MACEDONIA, THE FORMER           | MK |
| YUGOSLAV REPUBLIC OF            |    |
| MADAGASCAR                      | MG |
| MALAWI                          | MW |
| MALAYSIA                        | MY |
| MALDIVES                        | MV |
| MALI                            | ML |
| MALTA                           | MT |
| MARSHALL ISLANDS                | MH |
| MARTINIQUE                      | MQ |
| MAURITANIA                      | MR |
| MAURITIUS                       | MU |
| MAYOTTE                         | YT |
| MEXICO                          | MX |
| MICRONESIA, FEDERATED STATES OF | FM |
| MOLDOVA                         | MD |
| MONACO                          | MC |
| MONGOLIA                        | MN |
| MONTENEGRO                      | ME |
| MONTSERRAT                      | MS |
| MOROCCO                         | MA |
| MOZAMBIQUE                      | MZ |
| MYANMAR                         | MM |
| N                               |    |
| NAMIBIA                         | NA |
| NAURU                           | NR |
| NEPAL                           | NP |
| NETHERLANDS                     | NL |
| NETHERLANDS ANTILLES            | AN |
| NEW CALEDONIA                   | NC |
| NEW ZEALAND                     | NZ |
| NICARAGUA                       | NI |
| NIGER                           | NE |
| NIGERIA                         | NG |
| NIUE                            | NU |
| NORFOLK ISLAND                  | NF |
| NORTHERN MARIANA ISLANDS        | MP |
| NORWAY                          | NO |

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**O**

OMAN OM

**P**

PAKISTAN PK

PALAU PW

PALESTINIAN TERRITORY,  
OCCUPIED PS

PANAMA PA

PAPUA NEW GUINEA PG

PARAGUAY PY

PERU PE

PHILIPPINES PH

PITCAIRN PN

POLAND PL

PORTUGAL PT

PUERTO RICO PR

**Q**

QATAR QA

**R**

RÉUNION RE

ROMANIA RO

RUSSIAN FEDERATION RU

RWANDA RW

**S**

SAINT BARTHÉLEMY BL

SAINT HELENA SH

SAINT KITTS AND NEVIS KN

SAINT LUCIA LC

SAINT MARTIN MF

SAINT PIERRE AND MIQUELON PM

SAINT VINCENT AND THE  
GRENADINES VC

SAMOA WS

SAN MARINO SM

SAO TOME AND PRINCIPE ST

SAUDI ARABIA SA

SENEGAL SN

SERBIA RS

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|  |    |
|--|----|
| SEYCHELLES                                   | SC |
| SIERRA LEONE                                 | SL |
| SINGAPORE                                    | SG |
| SLOVAKIA                                     | SK |
| SLOVENIA                                     | SI |
| SOLOMON ISLANDS                              | SB |
| SOMALIA                                      | SO |
| SOUTH AFRICA                                 | ZA |
| SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS | GS |
| SPAIN  | ES |
| SRI LANKA                                    | LK |
| SUDAN  | SD |
| SURINAME                                     | SR |
| SVALBARD AND JAN MAYEN                       | SJ |
| SWAZILAND                                    | SZ |
| SWEDEN                                       | SE |
| SWITZERLAND                                  | CH |
| SYRIAN ARAB REPUBLIC                         | SY |
| <b>T</b>                                     |    |
| TAIWAN, PROVINCE OF CHINA                    | TW |
| TAJIKISTAN                                   | TJ |
| TANZANIA, UNITED REPUBLIC OF                 | TZ |
| THAILAND                                     | TH |
| TIMOR-LESTE                                  | TL |
| TOGO   | TG |
| TOKELAU                                      | TK |
| TONGA  | TO |
| TRINIDAD AND TOBAGO                          | TT |
| TUNISIA                                      | TN |
| TURKEY                                       | TR |
| TURKMENISTAN                                 | TM |
| TURKS AND CAICOS ISLANDS                     | TC |
| TUVALU                                       | TV |
| <b>U</b>                                     |    |
| UGANDA                                       | UG |
| UKRAINE                                      | UA |

Developer Notes

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|   |              |
|---|--------------|
| UNITED ARAB EMIRATES                    | AE           |
| UNITED KINGDOM                          | GB           |
| UNITED STATES                           | US           |
| UNITED STATES MINOR OUTLYING UM ISLANDS |              |
| URUGUAY                                 | UY           |
| UZBEKISTAN                              | UZ           |
| <b>V</b>                                |              |
| VANUATU                                 | VU           |
| VATICAN CITY STATE                      | see HOLY SEE |
| VENEZUELA                               | VE           |
| VIET NAM                                | VN           |
| VIRGIN ISLANDS, BRITISH                 | VG           |
| VIRGIN ISLANDS, U.S.                    | VI           |
| <b>W</b>                                |              |
| WALLIS AND FUTUNA                       | WF           |
| WESTERN SAHARA                          | EH           |
| <b>Y</b>                                |              |
| YEMEN                                   | YE           |
| <b>Z</b>                                |              |
| ZAMBIA                                  | ZM           |
| ZIMBABWE                                | ZW           |

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